National Institute of Environmental Health Sciences

Ecology of avian influenza viruses in a changing world

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Abstract:

Influenza A virus infections result in approximately 500,000 human deaths per year and many more sublethal infections. Wild birds are recognized as the ancestral host of influenza A viruses, and avian viruses have contributed genetic material to most human viruses, including subtypes H5N1 and H1N1. Thus, influenza virus transmission in wild and domestic animals and humans is intimately connected. Here we review how anthropogenic change, including human population growth, land use, climate change, globalization of trade, agricultural intensification, and changes in vaccine technology may alter the evolution and transmission of influenza viruses. Evidence suggests that viral transmission in domestic poultry, spillover to other domestic animals, wild birds and humans, and the potential for subsequent pandemic spread, are all increasing. We highlight four areas in need of research: drivers of viral subtype dynamics; ecological and evolutionary determinants of transmissibility and virulence in birds and humans; the impact of changing land use and climate on hosts, viruses, and transmission; and the impact of influenza viruses on wild bird hosts, including their ability to migrate while shedding virus.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2981064

Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Researcher

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Airborne Disease

Airborne Disease: Influenza

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified